FLUKE networks®

OptiView®

Wireless Network Analyzer

Getting Started Guide

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Software Notice

Portions of the application are based on PeerSec Networks MatrixSSL™ (http://www.peersec.com).

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Introduction

OptiView™ Wireless Network Analyzer, hereafter referred to as the "analyzer", brings the ruggedness, portability, and ease-of-use of the OptiView Network Analyzer to wireless LANs. Whether you are designing your first wireless LAN deployment, detecting rogue access points, verifying a recent installation, monitoring or troubleshooting wireless connectivity problems, the OptiView Wireless Network Analyzer gives you the vision you need to manage your wireless network.

Note

The OptiView Wireless Network Analyzer is equipped with a wireless network access card that supports 802.11a/b/g/n specifications.

Before You Start

⚠ **Warnings**

To avoid possible electric shock or personal injury, follow these guidelines:

- **Do not operate the product around explosive gas, vapor or dust.**

- **If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.**

Federal Communication Commission Interference Statement

The OptiView Wireless Network Analyzer complies with:

- FCC part 64, class A
- FCC part 15, class A

The wireless 802.11a/b/g/n PC card has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device supports FCC Part 15, subpart E dynamic frequency selection (DFS).

For the band 5150–5350 MHz this equipment must be used indoors only to reduce potential for harmful interference to co-channel mobile satellite systems.
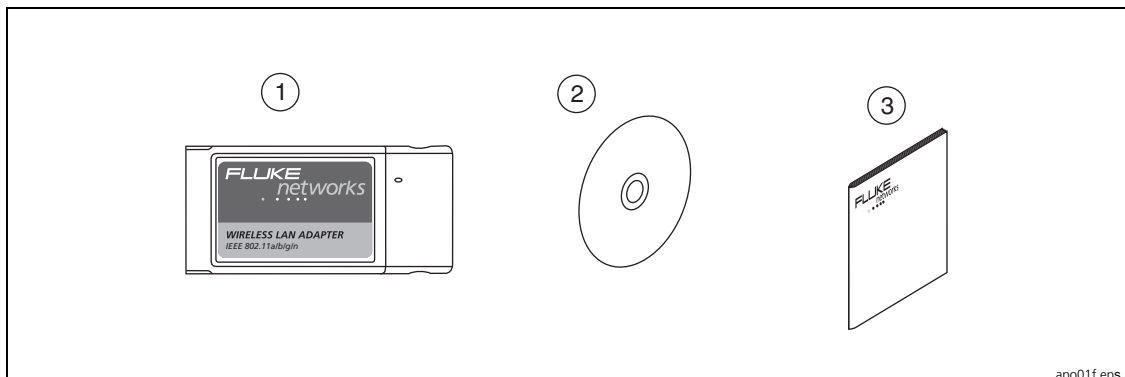
Operation is subject to the following conditions:

- The maximum antenna gain permitted (for devices in the 5250-5350 MHz and 5470-5725 MHz bands) to comply with the e.i.r.p. limit.

- The maximum antenna gain permitted (for devices in the 5725-5825 MHz band) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

- Users are cautioned that high power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars may cause interference and/or damage to LE-LAN devices.

OptiView Wireless Network Analyzer Support

As a registered user, you are entitled to entry level product support, including three free telephone support incidents during the first 60 days of ownership, access to entry level online Knowledge Base library of product operation and Software information, and Web-based trouble ticketing. We will also be sending you Fluke Networks company and product information updates.

Please take the time to register your analyzer. A registration card is supplied in the shipping box. You can also register by going to www.flukenetworks.com.

OptiView Wireless Network Analyzer and Accessories

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	Item	Description
1	Wireless LAN Adapter	Wireless 802.11a/b/g/n PC Card
2	CD-ROM	OptiView Wireless Network Analyzer CD-ROM. Contains installation software and documents.
3	OptiView Wireless Network Analyzer Getting Started Guide	Provides basic operating information and specifications for the OptiView Wireless Network Analyzer.
	Registration Card	Fluke Networks can serve you best by registering online at www.flukenetworks.com. If you cannot register online, please fill out and return the supplied registration card.
	Warranty Card	Factory 1 year warranty

Installing the OptiView Wireless Network Analyzer Application

There are three steps involved in the installation of the application:

1. Move the installation file from the Wireless Network Analyzer Option CD to your Integrated Network Analyzer.

2. Install the software on the analyzer.

3. Install the wireless PC card.

You can use a USB CD drive or a USB flash drive to install the software.

Notes

Any previous version of the Wireless Network Analyzer must be uninstalled first. You can use the Windows Control Panel to remove the program, or you will be prompted to remove any previous version when you run the Install program. After removing a previous version using the Install program, you must run the Install program a second time to install the new software.

The update software can be installed on OptiView Integrated Network Analyzers that are running Windows XP or Vista.

Remove the wireless PC card from the analyzer before installing the software update.

If you are using a USB flash drive:

1. Insert the OptiView Wireless Network Analyzer Option CD into your PC. Autostart should launch the user interface. If not, use Windows Explorer and double-click on **launch.exe**.

2. Press the **Update Software** button.

3. Press the **Copy Update Software** button.

4. From the   window, save the WNAInstall.exe file to the flash drive.

5. Install the flash drive in a USB port on your Integrated Network Analyzer.

6. Use Windows Explorer and run the WNAInstall.exe file. The InstallShield Wizard is executed and the installation begins. Follow the on-screen instructions to complete the installation.

7. Continue with step 14.

or, if you are using a USB CD drive:

8. Connect the CD drive to the Integrated Network Analyzer.

9. Insert the OptiView Wireless Network Analyzer Option CD. Autostart should launch the user interface. If not, use Windows Explorer and double-click on **launch.exe**.

10. Press the **Update Software** button.

11. Press the **Copy Update Software** button.

12. From the **Save As** window, save the WNAInstall.exe file to your Integrated Network Analyzer.

13. Run the WNAInstall.exe file. The InstallShield Wizard is executed and the installation begins. Follow the on-screen instructions to complete the installation.

14. You may be prompted with one of the following messages:

    Windows XP: **The software has not passed Windows Logo testing to verify its compatibility with Windows XP**.

    Press **Continue Anyway**

    Windows Vista: **Windows can't verify the publisher of this driver software**.

    Press **Install this driver software anyway**

15. Select **OK** when prompted to restart the analyzer.
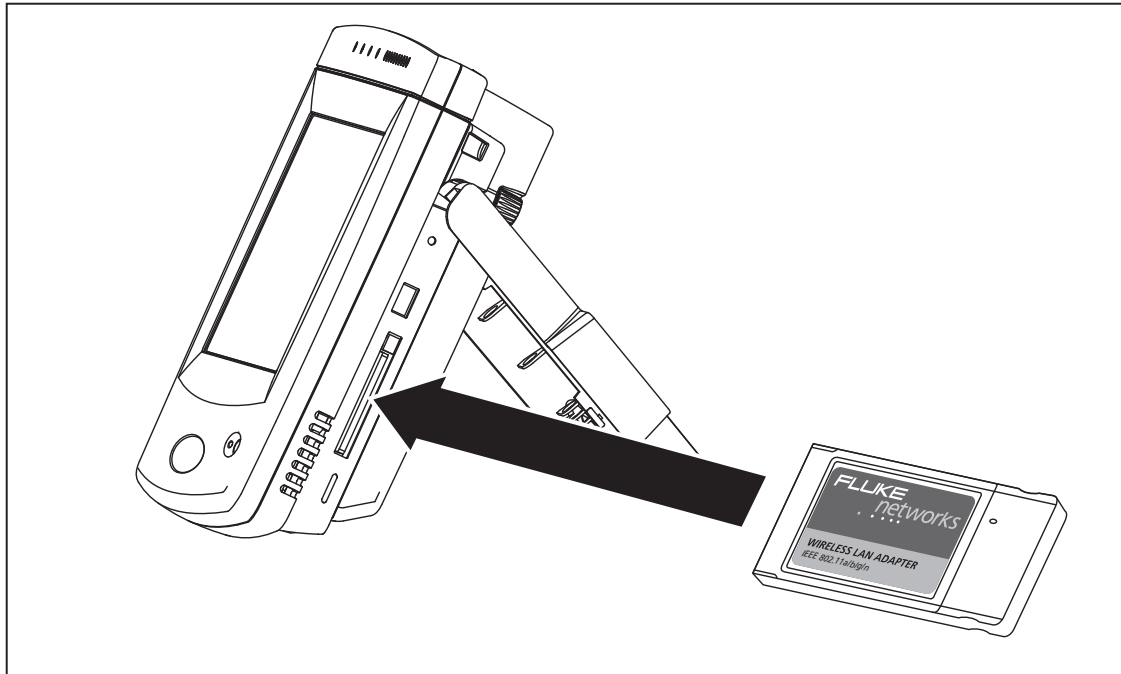
You can now install the wireless PC card.

Installing the Wireless PC Card

Notes

The OptiView Wireless Network Analyzer software must be installed BEFORE installing the 802.11a/b/g/n wireless PC Card.

*The version 4 (or later) software can also be used with the version 3 802.11 a/b/g PC card and external directional antenna. The directional antenna improves the performance of the **Locate** function. The 802.11 a/b/g/n PC card does not support the use of the external antenna.*

The wireless PC Card is installed in the PC Card slot located on the right side of the OptiView Integrated Network Analyzer. When inserting the card, make sure it is properly aligned while sliding it into the card slot. It should slide in freely. Do not force it into the slot.

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Windows XP installation

On Windows XP Service Pack 2, with the Windows Firewall turned On, you will be prompted with the **Found New Hardware Wizard** popup the first time the WLAN card is inserted.

1. Select **No, not this time** and press **Next**.

2. Select **Install the software automatically** and press **Next**.

You will be prompted with the following message:

The software has not passed Windows Logo testing to verify its compatibility with Windows XP.

Press **Continue Anyway**

You are now ready to use the analyzer.

Using the OptiView Wireless Network Analyzer

Driver Control Popup

The Fluke Networks OptiView Wireless Network Analyzer application and the Fluke Networks InterpretAir WLAN Survey Software application both use the drivers for the wireless PC card. Only one application can use the drivers at a time. After you install the Wireless Network Analyzer software, and you do not have the InterpretAir application installed you will see the following Driver Control popup when you insert the PC card:

The green radio button next to the **Wireless Network Analyzer driver is active** field indicates that the Wireless Network Analyzer application is using the drivers. You can disable the **Show window on application startup** and **Show window in response to adapter events** checkboxes if you do not wish to see the popup. Press the **Start WNA** button to begin the application.

If you have both applications installed, you will see the following Driver Control popup:
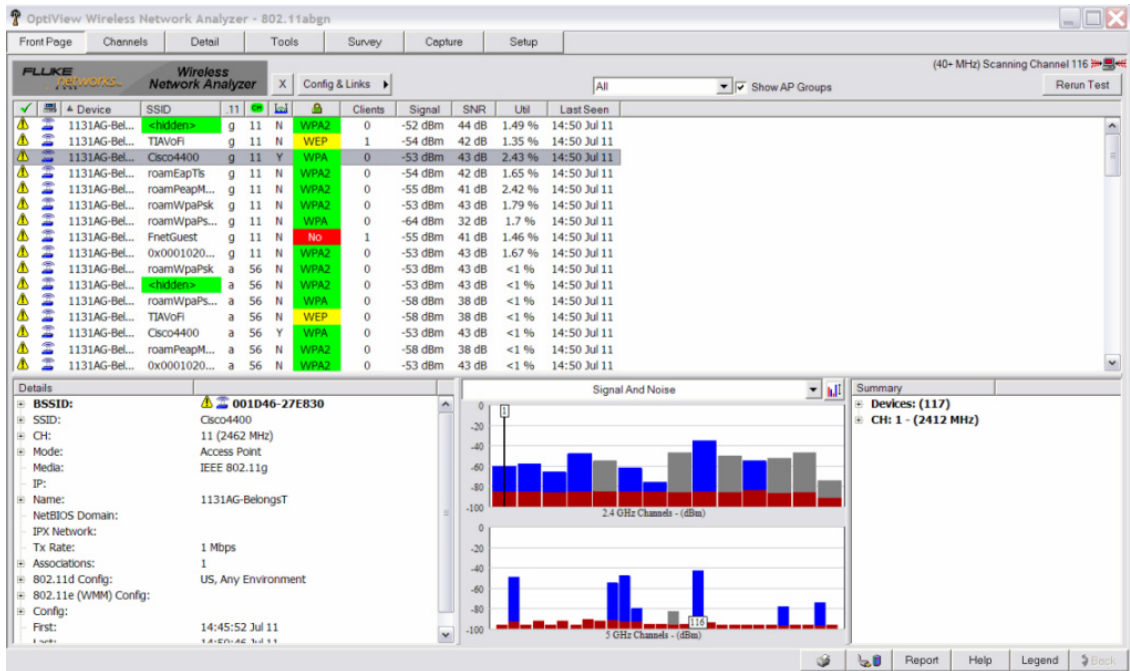
If the radio button next to the application that you want to run is not green, press the **Install** button to make the drivers active. It is recommended that you leave the **Show window on application startup** and **Show window in response to adapter events** checkboxes enabled. If you disable the checkboxes and wish to switch applications, you can select the icon in the system tray to display the Driver Control window.

Starting the OptiView Wireless Network Analyzer

On the Windows desktop, select the OptiView Wireless Network Analyzer (OPVWNA) icon to launch the software.

Upon a successful launch of the software, the OptiView Wireless Network Analyzer Front Page will appear as shown below. Monitoring of your WLAN is automatically started. Devices present on your wireless network are discovered and displayed.

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• The top pane of the screen gives immediate visibility into your 802.11 networks and their coverage quality, utilization, security levels, and vulnerabilities. You can use the pull-down menu above the device list to filter the list by device type or network configuration.

Notes

*IP and Name information can be discovered if the analyzer has been configured to autolink using a default SSID. Refer to the **Initial Setup** topic in the online Help for more information.*

*The color coding and icon legend for the **Front Page** screen and throughout the user interface can be viewed by pressing the **Legend** button located at the bottom of the screen.*

*Discovered devices will initially be shown as **Unauthorized** until specified by you. Refer to the **Initial Setup** topic in the online Help for more information.*

- Highlight an entry in the device list and key configuration parameters are displayed in the lower left section.
- The overall network health is displayed in the lower center section. The application continuously monitors 802.11a/b/g/n channels and reports key statistics important for maintaining your network (e.g. signal strength, retry rates, signal-to-noise, etc.). Use the pull-down menu to display the parameters of choice.
- The overall network summary is displayed in the lower right. It provides statistics on network device types, authorization levels, and security.
- Use the row of tabs at the top of the **Front Page** to gain access to detailed information about your wireless LAN environment, troubleshooting tools, and tests that are available in the product. The online Help provides information about each feature.
- Reports are available for most of the screens to aid in documenting your network.

Initial Setup

Refer to the **Initial Setup** topic in the online Help for more information.

Troubleshooting Your Analyzer

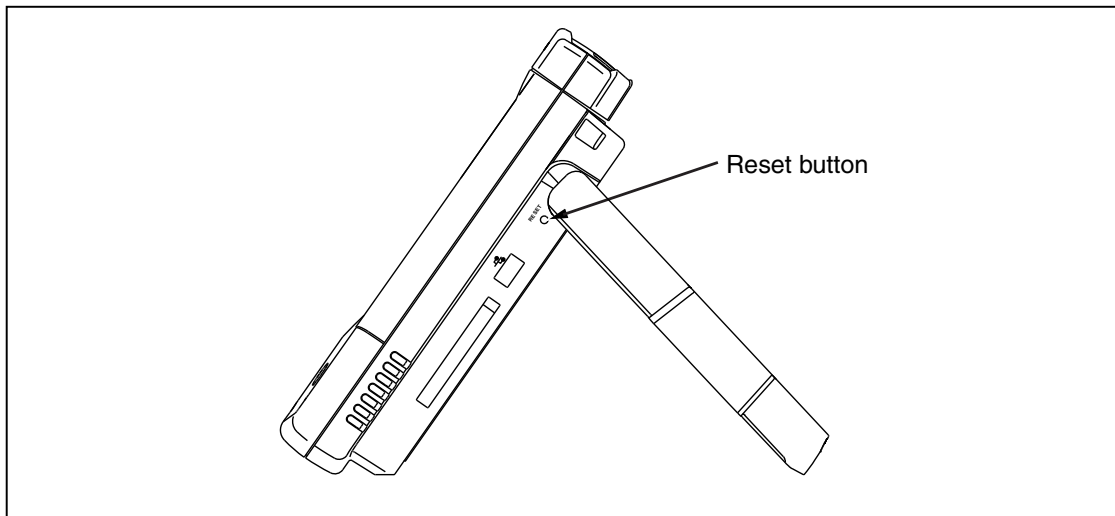### Resetting and Powering the Analyzer Completely Off

If you suspect the Windows environment has locked up, you may have to reset the OptiView Integrated Network Analyzer. This is done by pressing the **Reset** button. If you are not sure if the Windows environment or the analyzer (hardware) has locked up, you may have to completely power down the analyzer by forcing the power off as described below.

Forcing Power Off

Power can be forced off by pressing and holding the On/Off button for approximately 7 seconds.

Resetting the Analyzer

The **Reset** button resets the Windows portion of the analyzer without shutting down the data acquisition board. The **Reset** button should only be used if the Windows environment has stopped responding.

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Before Calling Technical Support

Before calling technical support, you can perform these basic analyzer troubleshooting steps to pinpoint many problems:

Do you suspect Windows has locked up?

If yes, press the **Reset** button.

Do you suspect the analyzer has locked up?

If yes, completely power-down the analyzer. See **Forcing Power Off** on page 12.

Does the analyzer power-up?

Connect the AC adapter/charger to determine if the internal battery (or internal and external batteries) is the culprit. The analyzer will not power-up if the batteries are completely discharged.

If the analyzer only powers up with the AC adapter connected, the internal battery may be completely discharged.

The external battery has a charge indicator on the underside of the battery pack. The external battery will need to be removed from the analyzer to view the charge indicator. Press the charge indicator button to determine if the external battery is charged.

Does the Windows wireless setup not support your network's security settings?

If your analyzer is running Windows XP Service Pack 1, and the Windows security settings do not support your wireless network, you may have to go to http://support.microsoft.com/default.aspx?scid=kb;en-us;826942 and download the wireless patches. These patches are included in Service Pack 2.

Using the Online Help System

The help system is an integral part of the OptiView Wireless Network Analyzer. While using the analyzer user interface, help can be accessed by selecting the **Help** button located on the bottom-right of the user interface screen.

When the Help is launched, the current screen topic is displayed. You can also select a topic from the **Contents** tab (left pane), choose an **Index** entry, or perform a full text **Search** on any help topic or term.

The **Hide** button collapses the left pane of the help screen giving you more room to view Help topics. The **Hide** button is replaced by the Show button. The **Show** button expands the left pane of the Help screen.

You can also press the **Back** and buttons to move through the sequence of previous viewed topics.

The **Print** button allows you to either print the selected topic or print the selected heading and all subtopics.

Wireless PC Card Specifications

- Frequency range:

    USA: 2.400 - 2.483GHz, 5.15 - 5.35GHz , 5.47 - 5.725GHz, 5.725 - 5.85GHz

    Europe: 2.400 - 2.483GHz, 5.15 - 5.35GHz, 5.47 - 5.725GHz

    Japan: 2.400 - 2.497GHz, 4.90 - 5.091GHz, 5.15 - 5.35GHz, 5.47 - 5.725GHz

    China: 2.400 - 2.483GHz, 5.725 -5.85GHz

- Modulation technique:

    802.11 a/b/g/n

    DSSS (DBPSK, DQPSK, CCK)

    OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

    DSSS (Direct Sequence Spread Spectrum) with

    DBPSK (Differential Binary Phase Shift Keying 1Mbps)

    DQPSK (Differential Quaternary Phase Shift Keying 2Mbps), and

    CCK (Complementary Code Keying 5.5&11Mbps), and

    OFDM (Orthogonal Frequency Division Multiplexing with BPSK for 6,9Mbps, QPSK for 12,18Mbps, 16QAM for 24,36Mbps, 64QAM for 48,54Mbps)

- Channel Support:
  802.11 b/g/n

    US/Canada: (1 - 11)

    Major European country: (1 - 13)

    France: (10 - 13)

    Japan: 11b: (1-13 or 14), 11g: (1 - 13)

    China: (1 - 13)

  802.11 a/n

    US/Canada: 36, 38, 40, 44, 46, 48, 52, 54, 56, 60, 62, 64, 100, 102, 104, 108, 110, 112, 116,118, 120,124,126, 128, 132, 134, 136, 140,

    149, 151, 153,157, 159, 161,165

    Europe/Australia/New Zealand: 36, 38, 40, 44, 46, 48, 52, 54, 56, 60, 62, 64, 100, 102, 104, 108, 110, 112, 116, 118, 120,124,126,128, 132, 134, 136, 140

    Japan: 36, 38, 40, 44, 46, 48, 52, 54, 56, 60, 62, 64,100, 102, 104, 108, 110, 112, 116, 118, 120, 124, 126, 128, 132, 134, 136, 140

China: 149, 153, 157, 161, 165

- Operating Voltage: 3.3V +/- 5%
- Output Power:
  - 802.11a/b/g 17 dBm peak power
  - 802.11n 2.4Ghz HT20 18dBm peak power, 2.4Ghz HT40 18dBm peak power, 5Ghz HT20 18dBm peak power5Ghz HT40 17dBm peak power
- Dimension: 112mm(L) x 48mm(W) x 0.787mm(T)
- Security:

    64-bit, 128-bit, 152-bit WEP encryption

    802.1X authentication

    AES-CCM & TKIP Encryption

- Operating Temperature: 0 – 55 degrees Celsius
- Storage Temperature: -20 – 80 degrees Celsius
- Wi-Fi Alliance: WECA compliant
- WHQL: Microsoft® 2000, XP compliant
- FAA: S/W audio On/Off support

  EMC Certificate:

  - 47 CFR FCC part 15 Subpart B / C Subsection15.247 / E Subsection 15.407 (USA)
  - IC RSS-102, RSS-210 RSS-GEN certified (Canada)
  - Telec (Japan)
  - ETSI, EN300328, EN301489, EN301893, EN60950, EN61326-1:2006 (Europe)
  - VCCI Class B
- Media Access Protocol : CSMA/CA with ACK architecture 32-bit MAC
- Embedded Antenna : Dual band metal PIFA antenna x2 and chip antenna x1